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## (54) Abstract Title

**Dual purpose food processor with power cut off when cover is removed**

(57) A food processor has a juicer (2) which requires container cover (23) to be in place in order to operate and a food processor (3) which only operates when juicer (2) is removed and lid (4) is placed on juice container base (11) (see Fig 10). A hollow machine base (1) has a vertical motor (Fig 3, 13) and is formed with a juice container base (11). A power changeover device (5) is positioned under the vertical motor (Fig 3, 13), and the machine base (1) is provided with a connecting rod (14) and stop and start micro-switches (18, 19) for controlling the vertical motor (Fig 3, 13). The connecting rod (14) contacts the stop and the start micro-switches (18, 19) respectively. The handle (21) of a juice container (2) is provided inside with a handle connecting rod (22) controlled by a container cover (23). When the container cover (23) is turned to close on the juice container (2), the handle connecting rod (22) compresses the connecting rod (14) to touch the start micro-switch (19) to start the vertical motor (Fig 3, 13). When the lid (4) of the juice container base (11) is located on the juice container base (11), it actuates the power changeover device (5) to make the vertical motor (Fig 3, 13) drive a food container (3).

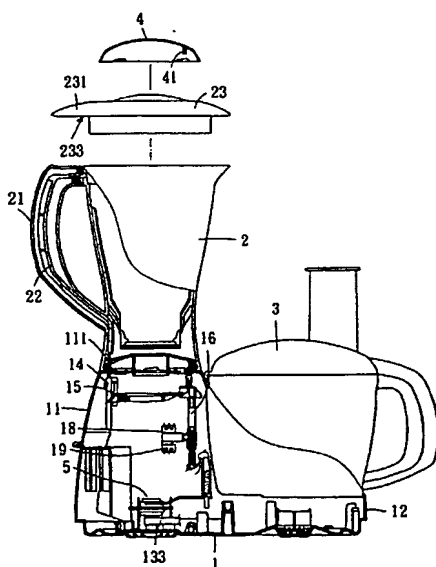


FIG. 3

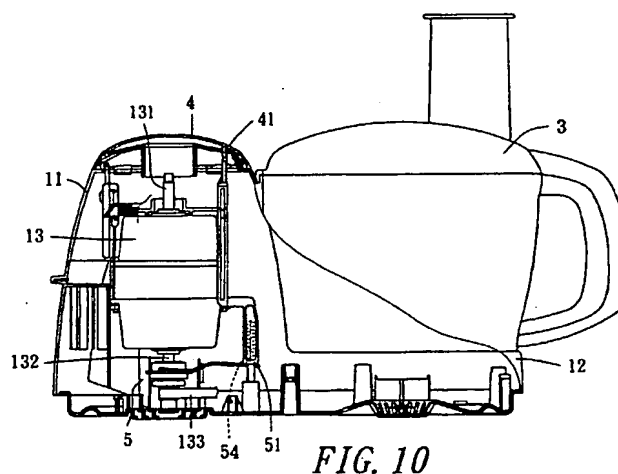


FIG. 10

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## FOOD PROCESSOR

## BACKGROUND OF THE INVENTION

This invention relates to a food processor,  
5 particularly to one having both functions of a juicer and  
a food blender.

10

A previously-proposed food processor, as shown in Fig.  
1 of the accompanying drawings, includes a machine base 10  
for a juice container 20 and a \_\_\_\_\_  
food container 30 to be mounted thereon, and a vertical  
15 motor 103 installed under the juice container 20. When the  
vertical motor 103 is started to activate the transmission  
gears, the blade of the juice container 20 and the food  
container 30 \_\_\_\_\_ rotate and stir at the same time,  
consequently resulting in overload of the motor 103 and  
20 wasting much electricity. In addition, when the juicer is  
used, a user has to engage the juice container on the  
machine base 10 and can then press a button to start the  
motor 103 to carry on stirring and blending whether the  
container cover 203 is properly closed or not.

25 Although it is easy to use such a previously-proposed  
juicer, owing to lack of safe protection an injury  
inflicted by the blade of the juicer can occur to a user if

his/her hand extends into the juice container 20 while it is in use, for example if the button is pressed by mistake, and is particularly dangerous for children.

5 Accordingly, it is desirable to provide a food processor which is able to economize electricity and is simple and safe in use.

A food processor embodying the present invention includes a hollow machine base having a juice container base formed on one side and a food container base on the  
10 other.

The juice container base is preferably provided inside with a vertical motor having an upper rotating shaft to drive the juice container, and a lower rotating shaft transmitted to drive a food container by means of a belt, with the lower  
15 rotating shaft affixed with a power changeover device. The power changeover device desirably consists of an actuating rod, a press member and a clutch. Preferably, when the juice container is mounted on the juice container base, the motor can directly drive the juice container to function.  
20 But, desirably when the juice container is disengaged from the juice container base and the juice container base is covered with a cover, the stud of the cover will press down the actuating rod and the press member to push the clutch so as to let the vertical motor drive the food  
25 container to operate by means of the belt.

Preferably, a vertical connecting rod is provided in one side of the juice container base far from the food container

base and restricted to shift up and down vertically only. The vertical connecting rod desirably has its top end facing a through hole on the top side of the juice container and  
5 desirably has its bottom end form a push-pull block for pushing a lateral connecting rod which is confined to simply move back and forth horizontally.

The lateral connecting rod is preferably formed at the front end with a push-pull block to be fitted with a set of  
10 vertical three sectional insert rods having a shape gradually shrinking from top to the bottom. Preferably, the first sectional insert rod has its top end face the lateral connecting rod and formed with a push-pull shaped chamber for receiving the push-pull block, the second  
15 sectional insert rod is fitted around with a first spring and inserted in a sleeve, and the third sectional insert rod extends out of the bottom of the sleeve and is fitted around with a second spring having its bottom end push against a position-limiting member provided for the  
20 third sectional insert rod to be inserted therein. Desirably, the sleeve around the second sectional insert rod has a lateral press rod extending out from one side, and a stop and a start micro-switch are respectively provided above and under the press rod for controlling the vertical  
25 motor to stop and start rotating.

In addition, desirably the handle of the juice container is provided inside with a handle connecting rod shaped to

match with the handle and having its bottom end inserted in the through hole in the juice container base for pressing the vertical connecting rod of the juice container base. The handle connecting rod preferably has its top  
5 end bent into a flat plate having its bottom side pressing a spring and its topside provided with a press member, with the spring resiliently pushing against the handle connecting rod and keeping it in a hoisting condition.

Furthermore, the juice container is preferably provided with a  
10 container cover having a protruding cover tongue formed at a rear end and corresponding to the handle, and a lateral rib facing the handle and having a press rod is formed under the cover tongue of the container cover.

Thus, when the juice container is engaged on the  
15 juice container base, the bottom end of the handle connecting rod in the handle of the juice container is exactly inserted in the through hole on the top side of the juice container and located above the vertical connecting rod.

20 The container cover is desirably closely mounted on the juice container in a way of turning around. When the container cover is turned around, preferably the bottom edge of the press rod under its cover tongue is shifted down to push against the press member of the handle connecting rod, forcing  
25 the handle connecting rod to move down and compress the spring. At the same time, preferably the bottom end of the handle connecting rod is actuated to force the vertical

connecting rod to move down vertically to let the push-pull block of the vertical connecting rod push the lateral connecting rod horizontally to shift toward the insert rod. Thus, the front end of the lateral connecting  
5 rod will make the insert rod to move downward together with the sleeve and compress the second spring, and at this time the press rod on one side of the sleeve is actuated to move down and compress the start micro-switch to turn on the vertical motor.

10 On the contrary, if the container cover is not tightly closed in position and the press rod of the container cover fails to touch the press member of the handle connecting rod, the spring will push the handle connecting rod to a hoisting condition, and the second  
15 spring in the juice container base will stretch again to push up the sleeve and the insert rod to let the press rod on one side of the sleeve touch the stop micro-switch to turn off the motor.

20 Reference will now be made, by way of example, to the accompanying drawings, wherein:

Fig. 1 is a cross-sectional view of a previously-proposed food processor;

Fig. 2 is a cross-sectional view of a food processor  
25 embodying the present invention;

Fig. 3 is another cross-sectional view of the food processor of Fig. 2:

Fig. 4 is a partially magnified view of Fig. 2;

Fig. 5 is partially exploded-perspective view of the food processor embodying the present invention;

Fig. 6 is a partial cross-sectional view of Fig. 5;

5 Fig. 7 is a partially magnified cross-sectional view of a juice container in the food processor embodying the present invention;

Fig. 8 is a partially magnified cross-sectional view of Fig. 7;

10 Fig. 9 is another partially magnified cross-sectional view of Fig. 7;

Fig. 10 is a cross-sectional view of the food processor embodying the present invention in a condition of processing food;

15 Fig. 11 is a partially magnified cross-sectional view of Fig. 10;

Fig. 12 is a cross-sectional view of the food processor embodying the present invention in a condition of having a container cover closed in the juice container;

20 Fig. 13 is a cross-sectional view of the food processor embodying the present invention with the container cover tightly closed;

Fig. 14 is a partially magnified side cross-sectional view of Fig. 13;

25 Fig. 15 is a partially magnified cross-sectional view of Fig. 13; and

Fig. 16 is a partially magnified cross-sectional

view of the food processor embodying the present invention used in another condition.

5       A preferred embodiment of a food processor embodying the present invention, as shown in Figs. 2 and 3, includes a hollow machine base 1, a juice container 2, a juice container base 11, a food container 3, and a food container base 12 as main components combined  
10 together.

      The hollow machine base 1 is provided with a bulgy juice container base 11 on one side for engaging the juice container 2, and a food container base 12 on the other side for receiving the food container 3. Then, a lid  
15 to be mounted on the juice container base 11 is provided with a stud 41 protruding downward at the bottom.

      The juice container base 11 is installed inside with a vertical motor 13 having an upper and a lower rotating shafts 131 and 132 respectively provided on top and at  
20 the bottom. The upper rotating shaft 131 directly drives the juice container 2, while the lower rotating shaft 132 is transmitted to drive the food container 3 by means of a belt, with the lower rotating shaft 132 fixed with a power changeover device 5, as shown in Fig. 2.

25       The power changeover device 5 is positioned near one side of the food container base 12, and composed of an actuating rod 51, a press member 52 and a clutch 53.



The actuating rod 51 rests on the press member 52 pulled by a spring 54, with its top end extending out of the top surface of the juice container base. The press member 52 has its front end pressing the clutch 53, which is located between an upper gear cover 55 and a lower transmission gear 56, with the upper gear cover 55 driven by the vertical motor 13 to rotate together with the lower transmission gear 56 at the same time. The clutch 53 is pressed down by the press member 52 and separated from the upper gear cover 55, and the belt 133 for driving the food container is fitted around the lower transmission gear 56, as shown in Figs. 2 and 4.

In addition, as shown in Figs. 3, 5 and 6, a vertical connecting rod 14 is provided in one side of the juice container base 11 far from the food container base 12 and restricted to move up and down vertically only. The vertical connecting rod 14 has its top end face the through hole 111 on top of the juice container base 11 and its bottom end form a push-pull block 141 resting against a lateral connecting rod 15 which is confined to simply shift back and forth horizontally.

The lateral connecting rod 15 is formed with a push-pull block 151 at the front end to be connected with three vertical continual insert rods, 16, 162, 164 with a shape gradually shrinking from top to the bottom. The first insert rod 16 has its top end formed with a push-pull shaped chamber 161 facing the lateral

connecting rod 15 and receiving its push-pull block 151.  
The second insert rod 162 is fitted around with a first  
spring 163 and inserted in a sleeve 17, and the third  
insert rod 164 extends out of the bottom side of the  
5 sleeve 17 and is fitted around with a second spring 165  
having its bottom end pushing against a  
position-limiting member 166 provided for the third  
sectional insert rod 164 to be positioned therein, with  
the second spring 165 keeping the insert rods 16, 162,  
10 164 in a pushing-up condition.

Further, the sleeve 17 fitted around the second  
insert rod 162 has a press rod 171 formed extending  
horizontally from one side, and a stop and a start  
micro-switches 18 and 19 are respectively provided  
15 above and under the press rod 171 for controlling the  
vertical motor 13 to stop and to start rotating. The  
sleeve 17 together with the press rod 171 is forced by the  
second spring 165 to move up to force the press rod 171  
compress the stop micro-switch 18.

20 In addition as shown in Figs. 7, 8 and 9, the handle  
21 of the juice container 2 is provided inside with a  
handle connecting rod 22 having a shape matching with  
the handle 21 and having its bottom end inserted in the  
through hole 111 of the juice container base 11. The  
25 handle connecting rod 22 has its top end bent into a flat  
plate 221 having its bottom side press a spring 222 fitted  
in the handle 21, as shown in Figs. 7 and 9, and its top

side provided with a protruding-up press member 223 having an arcuate top surface, as shown in Figs. 7 and 8. The spring 222 pushes against the handle connecting rod 22 to keep it in a hoisting condition.

5        Further, the juice container 2 is provided with a container cover 23 able to tightly cover up the juice container 2 only when it is turned around in position. The container cover 23 is formed with a cover tongue 231 protruding out at a rear side and covering on the topside  
10 of the handle 21. The cover tongue 231 has a lateral rib 232 formed at the bottom side to protrude downward, and the lateral rib 232 is provided with a press rod 233 protruding downward and facing the handle 21, with the bottom surface of the press rod 233 arc-shaped to  
15 conform to the actuate surface of the top end of the handle connecting rod 22, as shown in Fig. 8.

A food processor embodying the present invention can be used for food and juice processing respectively.

If the food processor is alternatively used for  
20 processing food, the juice container 3 is first removed from the juice container base 11, and the lid 4 is covered on the juice container base 11, as shown in Fig. 10. When the lid 4 is covered on the juice container base 11, its stud 41 will be aligned to the actuating rod 51 and press  
25 it down into the juice container base 11 to push the rear end of the press member 52 incline down, and at the same time the front end of the press member 52 will move up

to let the clutch 53 mesh with the upper gear cover 55. Thus, when the vertical motor 13 begins to operate, its upper rotating shaft 131 will rotate idly, while the lower rotating shaft 132 will directly drive the upper gear cover 55, the clutch 53 and the lower transmission gear 56 to rotate simultaneously, and the lower portion of the lower transmission gear 56 will be actuated to drive the transmitting belt 133 to rotate the food container 3 to carry on food processing. After finishing processing food, the lid 4 on the juice container base 11 is removed to let the press member 52 recover its original position by the recovering force of the spring 54, as shown in Figs. 3 and 4.

By so designing, the food container 3 or the juice container 2 can be employed separately. However, when both the juice container 2 and the food container 3 are mounted on the machine base 1 at the same time, only the juice container 2 can be driven for processing. Under this condition, the food container 3 can't operate any longer unless the juice container 2 is removed and the lid 4 is covered on the juice container base 1, thus lowering the load of the vertical motor 13 and economizing electricity.

On the contrary, in case the juice container is alternatively used, firstly, the juice container 2 is directly engaged on the juice container base 11, as shown in Fig. 12, and the bottom end of the handle

connecting rod 22 in the handle 21 of the juice container 2 is exactly inserted in the through hole 111 on the top surface of the juice container base 11 and contacts with the top end of the vertical connecting rod 14 inside. At this time, the first and the second springs 163 and 165 are respectively in a stretching condition, as shown in Fig. 6, therefore the press rod 171 on one side of the sleeve 17 will press the stop micro-switch 18 above it to keep the vertical motor 13 motionless not to rotate.

Next, when the container cover 23 is deposited on the juice container 2 and turned around to close up the juice container 2 tightly at a positioning location, as shown in Fig. 13, its cover tongue 231 will synchronously be moved to be aligned to the handle 21 of the juice container 2. Meanwhile, the press rod 233 under the cover tongue 231 has its arcuate surface contacting with the arc-shaped surface on the top edge of the press member 223 and pushing against the press member 223 of the handle connecting rod 22, as shown in Fig. 14. Thus, the vertical connecting rod 14 is pressed to move down by the press rod 223, and the spring 222 under the flat plate 221 becomes shrunken, as shown in Fig. 15. At the same time, the handle connecting rod 22 has its bottom end press the vertical rod 14 in the juice container base 11 to move down to force the push-pull block 141 at the bottom end of the vertical rod 14 press and force the lateral connecting rod 15 to move forward

toward the first insert rod 16. In this case, the push-pull block 151 at the front end of the lateral connecting rod 15 is deeply inserted in the push-pull shaped chamber 161 on the top end of the first insert rod 16, as shown in Fig. 15, to force the insert rod 16 together with the sleeve 17 outside the second insert rod 162 to shift down and make the second spring 165 shrunken, and synchronously the press rod 171 on one side of the sleeve 17 is also moved down to press the start micro-switch 19 start the vertical motor 13 rotate to drive the juice container 2.

After finishing juice processing, the container cover 23 is reversely turned open to let its cover tongue 231 face the handle 21 no more, and make the bottom edge of the press rod 233 fail to push against the press member 223 of the handle connecting rod 22, so that the spring 222 under the flat plate 221 recovers to move the handle connecting rod 22, as shown in Figs. 9 and 10. At the same time, the second spring 165 in the juice container base 11 recovers to push up the first insert rod 16, the lateral connecting rod 15 and the vertical connecting rod 14 back to an original condition shown in Fig. 6. Thus, the stop micro-switch 18 will cut off the electricity of the vertical motor 13, stopping the vertical motor 13.

With reference to the three insert rods 16, 162, 164 as described above, \_\_\_\_\_

the second insert rod 162 is fitted around with the first spring 163 and inserted in a sleeve 17. By so designing, if the container cover 23 is turned around to cover up the juice container 2 with an excessive force and make the first insert rod 16 move down to a distance farther than that of the sleeve 17 moving down to the start micro-switch 19, this excessive distance can be absorbed by the first spring 163 shrunk in the sleeve 17. Thus, even if the first insert rod 16 is moved down too far, the press rod 171 on one side of the sleeve 17 still can be kept in a condition of properly touching the start micro-switch 19, accordingly having a buffer effect.

Evidently, the container cover 23 plays a most important role in this invention because it controls the juice container 2 to operate. In other words, whether or not the juice container 2 can function to carry on processing all depends on if the container cover 23 is turned to a positioning location and closed tightly. In case the container cover 23 is not closed tightly, the juice container 2 cannot make electric connection for processing even through it has already been mounted on the juice container base 11. Besides, even if the container cover 23 is turned open by a curious child, the stop micro-switch 18 is pressed by the press rod 171 to stop the vertical motor 13. Thus, even if a child extends a hand in the opened juice container 2, no injury is likely to occur, because the juice container 2 fails to make

electric connection nor can it operate, thereby being not only easy in handling but safe in use as well.

While the preferred embodiment of the invention has been described above, it will be recognized and  
5 understood that various modifications may be made therein.



CLAIMS:

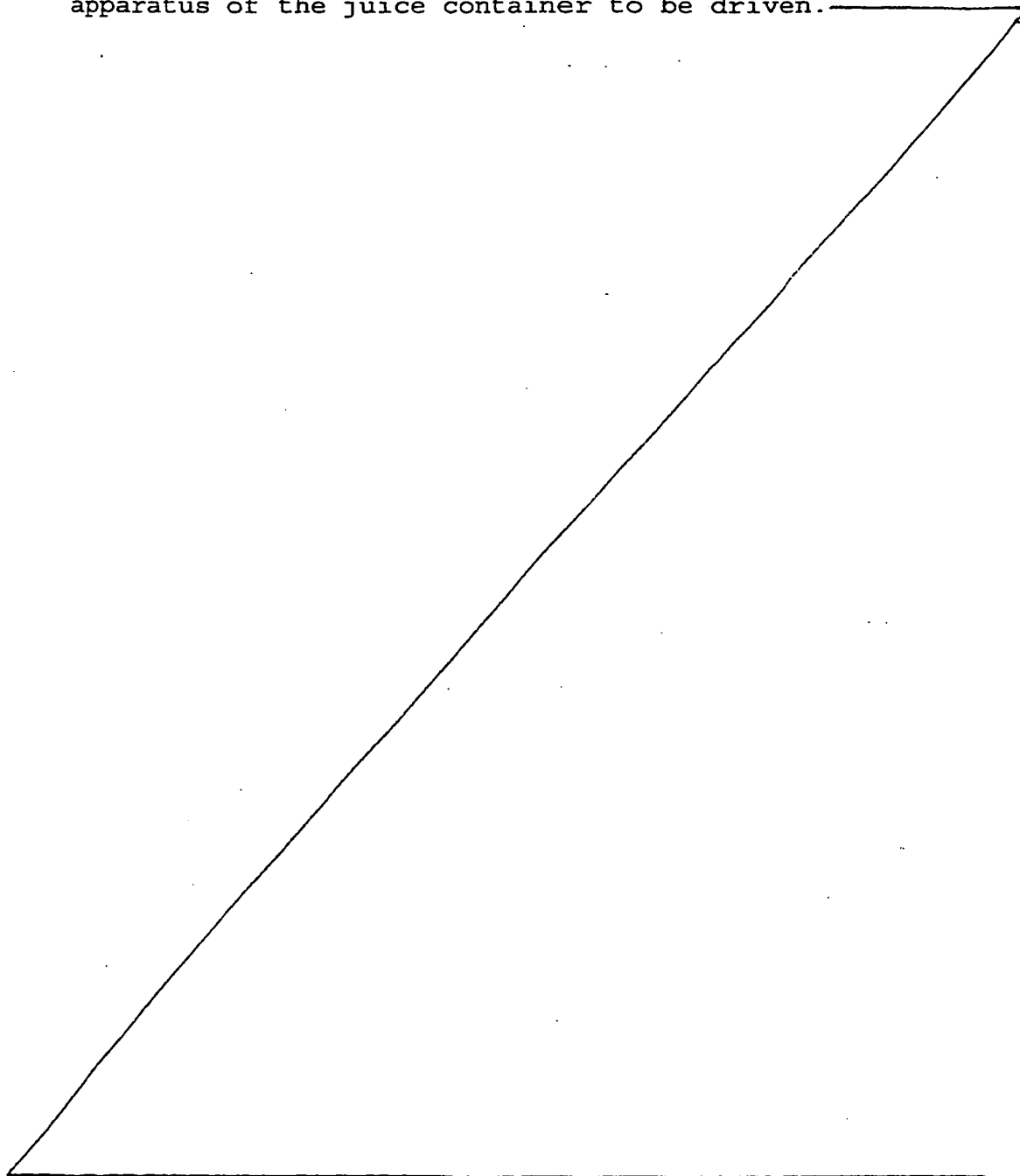
1. A food processor comprising a housing containing a motor for driving first processing apparatus located within a food container when mounted on a food container base of the housing and second processing apparatus located within a juice container when mounted on a juice container base of the housing, wherein the juice container base is provided with a removable cover and a power switching device, whereby when the removable cover is located over the juice container base the power switching device is activated so as to cause the motor to drive the first processing apparatus and when the removable cover is removed from the juice container base the power switching device is activated so as to cause the motor to drive the second processing apparatus.

2. A food processor as claimed in claim 1, wherein the juice container is provided with a removable cover and an activation device for causing the motor to drive the second processing apparatus, whereby only when the removable cover of the juice container is located thereon is the activation device activated so as to cause the second processing apparatus to be driven.

3. A food processor comprising a housing containing a motor for driving processing apparatus located within a juice container when mounted on a juice container base of the housing, wherein the juice container is provided with a removable cover and an activation device for causing the

motor to drive the processing apparatus, whereby only when the removable cover is located on the juice container is the activation device activated so as to cause the processing apparatus of the juice container to be driven.

5



4. A food processor comprising a hollow machine base provided inside with a vertical motor, said machine base formed with a bulgy juice container base on one side for engaging a juice container therein, said machine  
5 base further formed with a food container base on the other side for a food container to be mounted thereon;

wherein said juice container base has \_\_\_\_\_  
10 one side far from said food container base provided inside with a vertical connecting rod, said vertical connecting rod restricted to shift up and down vertically only, said vertical connecting rod having its top end facing a through hole in the top surface of said juice  
15 container base, said vertical connecting rod having its bottom end formed with a push-pull block able to push a lateral connecting rod, said lateral connecting rod restricted simply to shift back and forth horizontally, said lateral connecting rod formed with a push-pull  
20 block at the front end, said lateral connecting rod having its front end connected with three vertical continual insert rods with a shape gradually shrinking from top to the bottom, a first insert rod of said three insert rods having its top end formed with a push-pull shaped  
25 chamber for receiving said push-pull block of said lateral connecting rod, a second insert rod of said three insert rods fitted around with a first spring and inserted

in a sleeve, a third insert rod of said three insert rods fitted around with a second spring and extending out of the bottom side of said sleeve, said second spring having its bottom end resting on a position-limiting member  
5 provided for said third insert rod to be inserted therein; said sleeve having one side extending out horizontally to make up a press rod, a stop and a start micro-switch respectively installed above and under said press rod for controlling said vertical motor, the handle of said juice  
10 container having a handle connecting rod provided inside, said handle connecting rod shaped like said handle, said handle connecting rod having its bottom end inserted in said through hole of said juice container base to compress said vertical connecting rod, said handle  
15 connecting rod having its top end bent into a flat plate, said flat plate having its bottom side compressing a spring and its top side provided with a protruding press member, said spring resiliently pushing and keeping said handle connecting rod in a hoisting condition; said juice  
20 container tightly covered up with a container cover able to turn around in position, said container cover formed at a rear end with a cover tongue facing said handle, said cover tongue provided under with a protruding-out lateral rib, said lateral rib facing said handle and having  
25 a press rod, the bottom edge of said press rod under said cover tongue being lower than the top edge of said press member on said flat plate; said juice container mounted

on said juice container base, the bottom end of said handle connecting rod in said handle exactly inserted in said through hole in the top of said juice container base and located above said vertical connecting rod, said  
5 press rod having its bottom edge pushing said press member of said handle connecting rod to let said handle connecting rod move down to press said spring when said container cover is turned around and firmly covered on said juice container, said handle connecting rod having  
10 its bottom end pressing said vertical connecting rod to move down vertically, the bottom end of said push-pull block of said vertical connecting rod pushing said lateral connecting rod to shift horizontally toward said insert rod, said lateral connecting rod having its front  
15 end press said insert rod to move down, said first insert rod actuating said sleeve to move down and pressing said second spring, said press rod on one side of said sleeve actuated to press said start micro-switch to make electric connection; said press rod of said container  
20 cover failing to contact with said press member of said handle connecting rod if said container cover is not turned to a tightly covering location, said spring resiliently pushing against said handle connecting rod to keep it in a hoisting condition, said first and second  
25 springs stretching again and forcing said sleeve and said first insert rod to move up synchronously, said press rod on one side of said sleeve contacting with said stop

micro-switch to stop said vertical motor.

5. The food processor as claimed in Claim 4, wherein said second sectional insert rod fitted in said sleeve has its outer side provided with another spring to heighten a buffer effect.

6. The food processor as claimed in Claim 4 or 5, wherein the bottom edge of said press rod under said cover tongue and the top edge of said press member above said handle connecting rod are arc-shaped respectively.

7. The food processor as claimed in Claim 4, 5 or 6, wherein said vertical motor has its upper rotating shaft directly drive said juice container and its lower rotating shaft drive said food processor through a transmitting belt, and said lower rotating shaft is affixed with a power changeover device which is composed of an actuating rod, a press member and a clutch, said actuating rod and said press member compressed by said juice container cover to actuate said clutch to let said vertical motor drive said food container to operate by means of said belt when said juice container is removed from said juice container base, with said cover covered on said juice container base.

8. The food processor as claimed in Claim 7, wherein said clutch is positioned between an upper gear cover and a lower transmission gear, said upper gear cover is driven by said vertical motor, and said lower

transmission shaft is rotated to drive said food container through said belt, said actuating rod compressing said press member and pushing said clutch to mesh with said upper gear cover and synchronously actuating said lower  
5 transmission gear to drive said food container by said belt when said cover is mounted on said juice container base.

9. The food processor as claimed in Claim 7 or 8, wherein said juice container base of said machine base is  
10 bored in the top surface with a through hole for said actuating rod to extend out therethrough.

10. The food processor as claimed in any preceding claim, wherein said lid is provided under with a stud protruding downward, with said stud compressing said actuating rod  
15 to move down when said cover is covered on said juice container base.

11. A food processor substantially as hereinbefore described with reference to the accompanying drawings.

23

CLAIMS:

1. A food processor comprising a housing  
containing a motor for driving first processing  
apparatus located within a food container when mounted  
5 on a food container base of the housing and second  
processing apparatus located within a juice container  
when mounted on a juice container base of the housing,  
wherein the juice container base is provided with a lid  
and a power switching device, whereby when the lid is  
10 located over the juice container base the power  
switching device is activated so as to cause the motor  
to drive the first processing apparatus and when the  
lid is removed from the juice container base the power  
switching device is activated so as to cause the motor  
15 to drive the second processing apparatus.

2. A food processor as claimed in claim 1,  
wherein the juice container is provided with a lid and  
an activation device for causing the motor to drive the  
second processing apparatus, whereby only when the lid  
20 of the juice container is located thereon is the  
activation device activated so as to cause the second  
processing apparatus to be driven.

3. A food processor as claimed in claim 1 or 2,  
wherein the juice container base is provided inside  
25 with a vertical motor having an upper rotating shaft to  
drive the juice container, and a lower rotating shaft  
transmitted to drive a food container by means of a  
belt, the lower rotating shaft being provided with a  
power changeover device.

30 4. A food processor as claimed in claim 3,  
wherein the power changeover device consists of an  
actuating rod, a press member and a clutch.

5. A food processor as claimed in claim 4,  
wherein when the juice container is mounted on the  
35 juice container base, the motor can directly drive the  
juice container to function.



6. A food processor as claimed in claim 5,  
wherein when the juice container is disengaged from the  
juice container base and the juice container base is  
covered with the lid, the stud of the lid presses down  
5 the actuating rod and the press member to push the  
clutch so as to allow the vertical motor to drive the  
food container by means of the belt.

7. A food processor as claimed in any preceding  
claim, wherein a vertical connecting rod is provided in  
10 one side of the juice container base far from the food  
container base and restricted to shift up and down  
vertically.

8. A food processor as claimed in claim 7,  
wherein the top end of the vertical connecting rod  
15 faces a through hole on the top side of the juice  
container, and wherein the bottom end of the vertical  
connecting rod forms a push-pull block for pushing a  
lateral connecting rod which is confined to move back  
and forth horizontally.

20 9. A food processor as claimed in claim 8,  
wherein the lateral connecting rod is provided at its  
front end with a push-pull block connected with three  
vertical sectional insert rods having a shape gradually  
shrinking from top to the bottom.

25 10. A food processor as claimed in claim 9,  
wherein a first insert rod of said three insert rods  
has its top end facing the lateral connecting rod and  
is formed with a push-pull shaped chamber for receiving  
the push-pull block of the lateral connecting rod, and  
30 wherein a second sectional insert rod of said three  
insert rods is fitted with a first spring and is  
inserted in a sleeve, and wherein a third sectional  
insert rod of said three insert rods extends out of the  
bottom of the sleeve and is fitted with a second spring  
35 having its bottom end pushing against a position-

limiting member provided for the third sectional insert rod to be inserted therein.

11. A food processor as claimed in claim 10,  
wherein the sleeve around the second sectional insert  
5 rod has a lateral press rod extending out from one  
side, a stop micro-switch provided above the press rod  
and a start micro-switch provided under the press rod  
for stopping and starting the rotation of the vertical  
motor.

10 12. A food processor as claimed in claim 11,  
wherein the juice container comprises a handle which is  
provided inside with a handle connecting rod shaped to  
match with the handle and having its bottom end  
inserted in the through hole in the juice container  
15 base for pressing the vertical connecting rod of the  
juice container base.

13. A food processor as claimed in claim 12,  
wherein the handle connecting rod has its top end bent  
into a flat plate, its bottom side pressing a spring,  
20 its topside being provided with a press member, the  
spring being resiliently pushed against the handle  
connecting rod and so as to keep the handle in a  
hoisting position.

14. A food processor as claimed in claim 12,  
25 wherein the juice container is provided with a  
container cover having a protruding cover tongue formed  
at the rear end of the container cover and in a  
position corresponding to the handle, and a lateral rib  
facing the handle and having a press rod formed under  
30 the cover tongue of the container cover, such that when  
the juice container is engaged on the juice container  
base, the bottom end of the handle connecting rod in  
the handle of the juice container is exactly inserted  
in the through hole on the top side of the juice  
35 container and located above the vertical connecting  
rod.

15. A food processor as claimed in claim 14, wherein the container cover is closely mounted on the juice container in a way which allows it to be turned around, and wherein when the container cover is turned  
5 around, the bottom edge of the press rod under its cover tongue shifts down to push against the press member of the handle connecting rod, thereby forcing the handle connecting rod to move down and compress the spring.

10 16. A food processor as claimed in claim 15, wherein the bottom end of the handle connecting rod is simultaneously actuated to force the vertical  
connecting rod to move down vertically, thereby  
15 allowing the push-pull block of the vertical connecting rod to push the lateral connecting rod in a horizontal fashion toward the insert rod, said lateral connecting rod causing the insert rod to move downward together  
with the sleeve and to compress the second spring, wherein the press rod on one side of the sleeve is  
20 actuated to move down and compress the start micro-switch to turn on the vertical motor.

17. A food processor as claimed in claim 14, wherein if the container cover is not closely mounted on the juice container, and the press rod of the  
25 container cover fails to touch the press member of the handle connecting rod, the spring pushes the handle connecting rod to a hoisting condition, the second spring in the juice container base acting to push up the sleeve and the insert rod to allow the press rod on  
30 one side of the sleeve to touch the stop micro-switch to turn of the motor.

18. A food processor as claimed in any one of claims 10 to 17 wherein said second sectional insert  
35 rod fitted in said sleeve has its outer side provided with another spring to heighten a buffer effect.

19. A food processor as claimed in any one of claims 11 to 17, wherein both the bottom edge of said press rod under said cover tongue, and the top edge of said press member above said handle connecting rod, are arc-shaped.

20. A food processor as claimed in claim 18 or 19, wherein the upper rotating shaft of said vertical motor directly drives said juice container and its lower rotating shaft drive through a transmitting belt, wherein said lower rotating shaft is affixed with a power changeover device which is composed of an actuating rod, a press member and a clutch, said actuating rod and said press member compressed by said juice container cover to actuate said clutch in order to allow said vertical motor drive to operate by means of said belt when said juice container is removed from said juice container base and when said lid covers said juice container base.

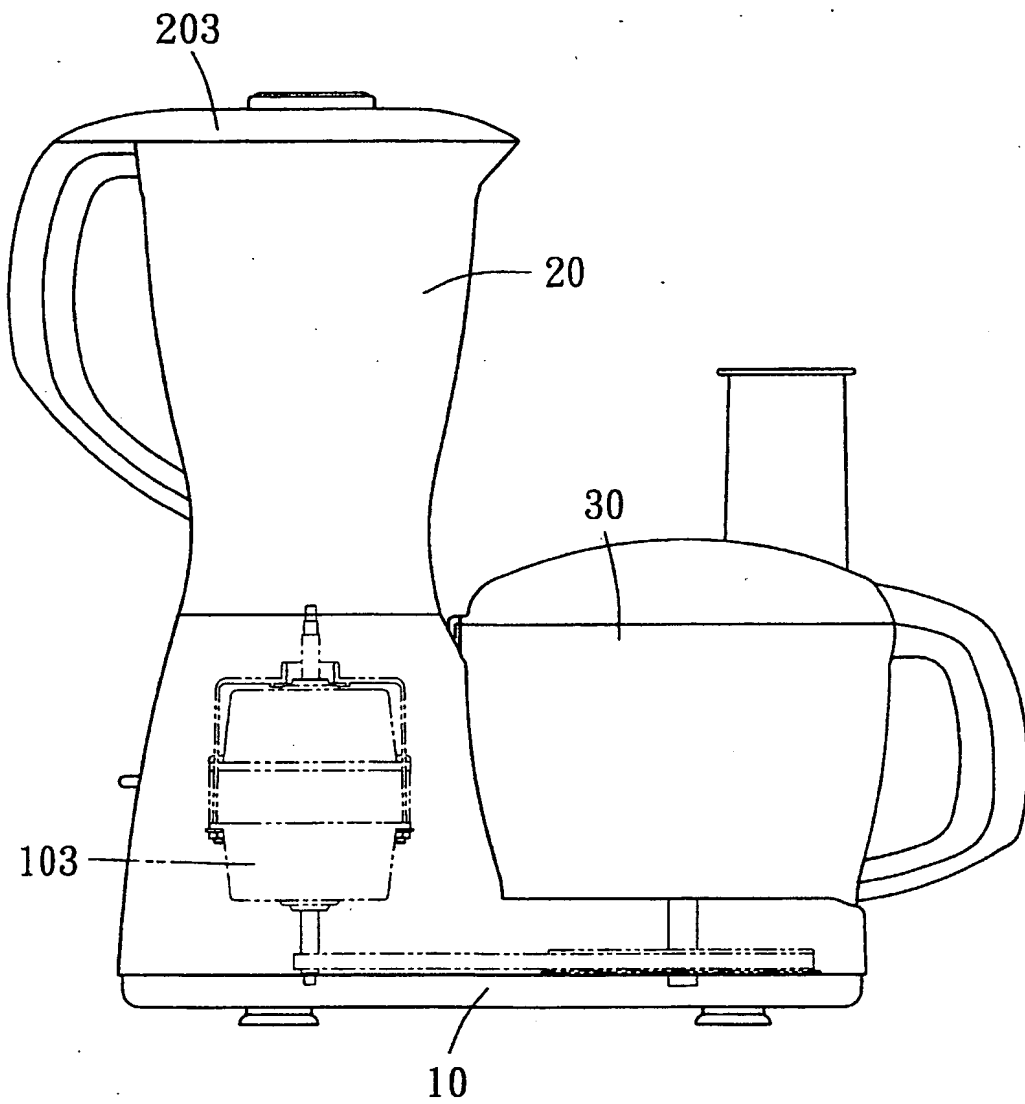
21. A food processor as claimed in claim 20, wherein said clutch is positioned between an upper gear cover and a lower transmission gear, said upper gear cover being driven by said vertical motor and said lower transmission shaft being rotated to drive said food container through said belt, wherein said actuating rod compresses said press member and pushes said clutch to mesh with said upper gear cover and synchronously actuates said lower transmission gear to drive said food container by said belt when said lid is mounted on said juice container base.

22. A food processor as claimed in claim 20 or 21, wherein said juice container base of said machine base is provided with a through hole bored in the top surface thereof to allow said actuating rod to extend therethrough.

23. A food processor as claimed in any preceding claim, wherein the underneath of said lid is provided

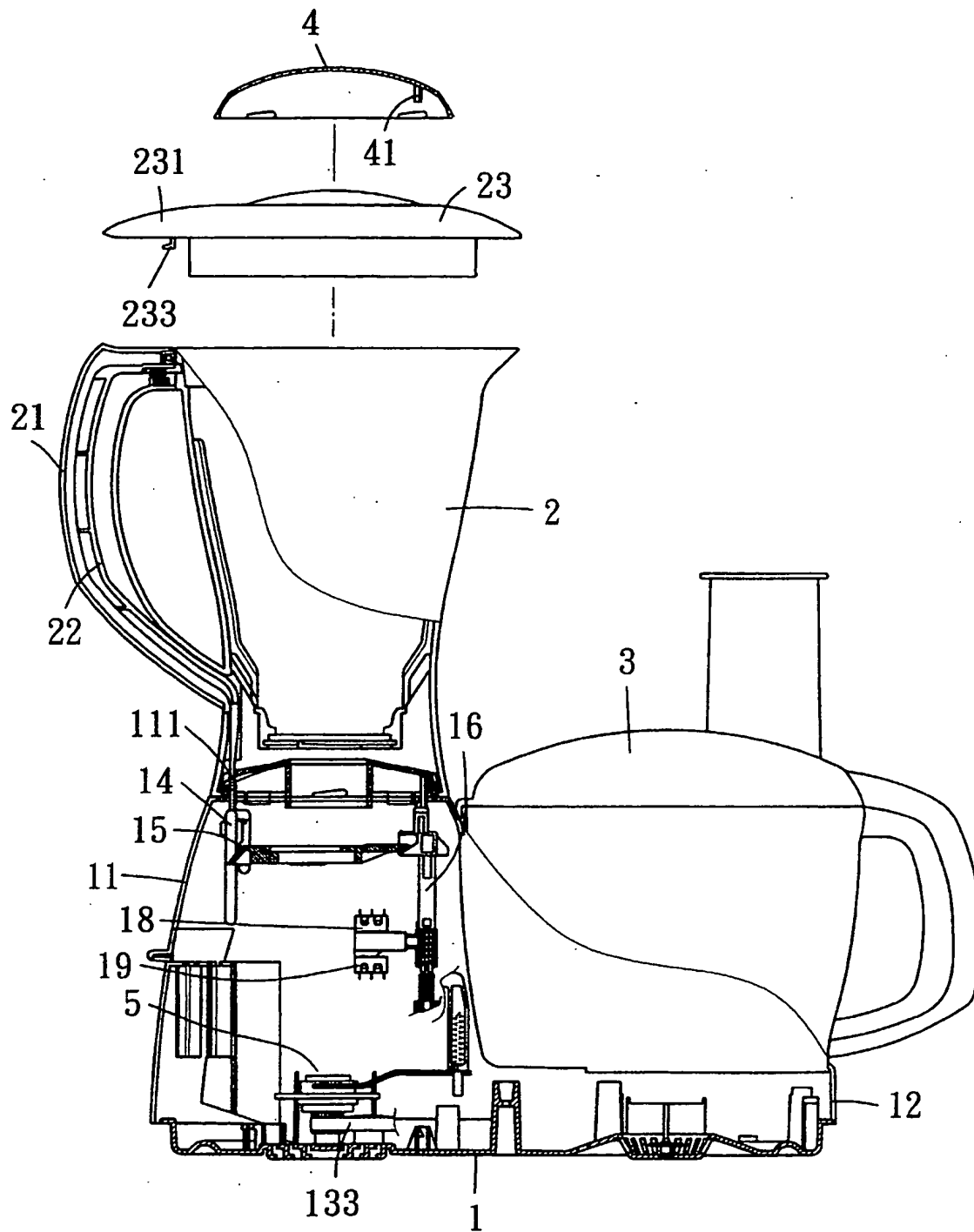
with a stud protruding downward, said stud compressing said actuating rod to move down when said lid is covered on said juice container base.

24. A food processor substantially as  
5 hereinbefore described with reference to Figures 2 to 16 of the accompanying drawings.

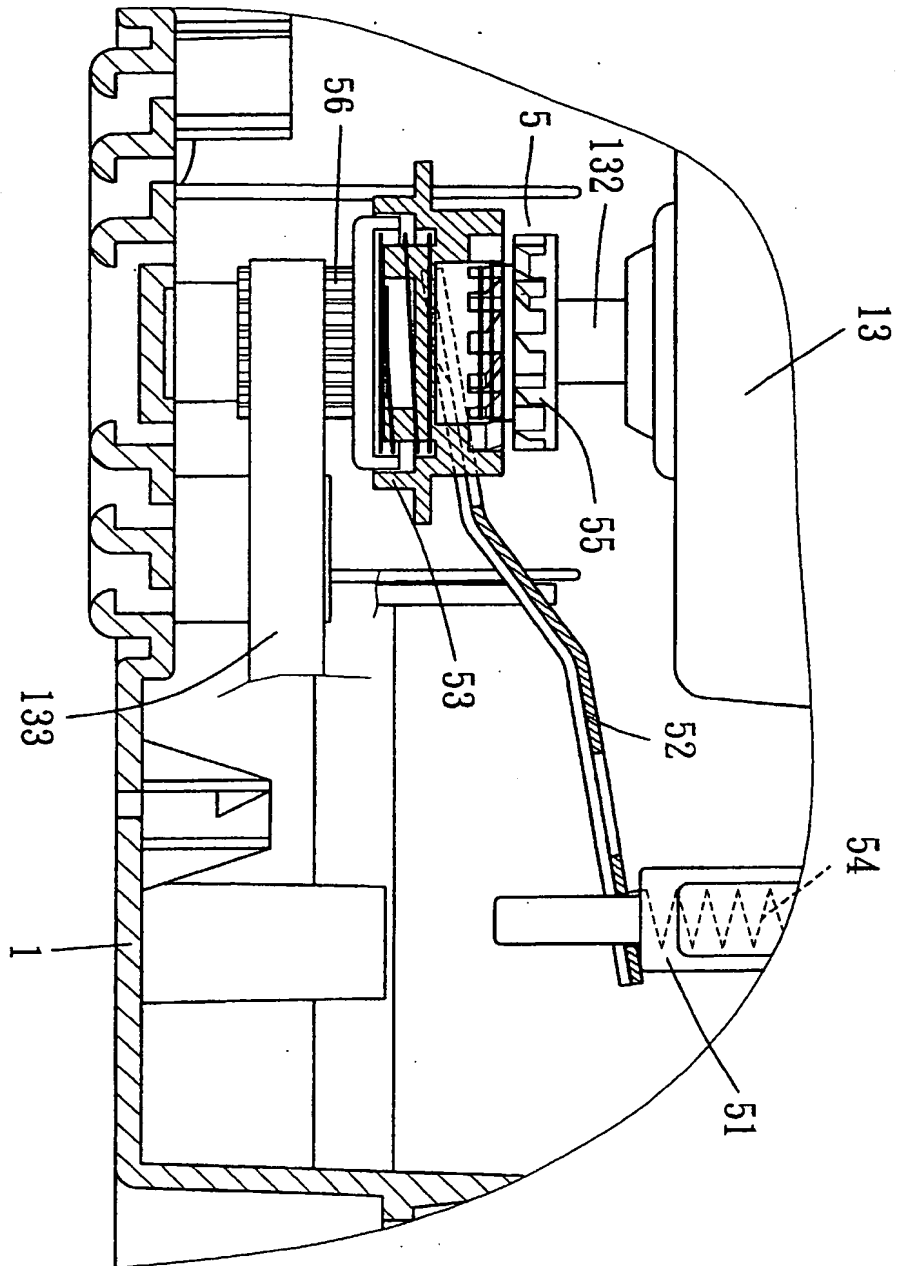


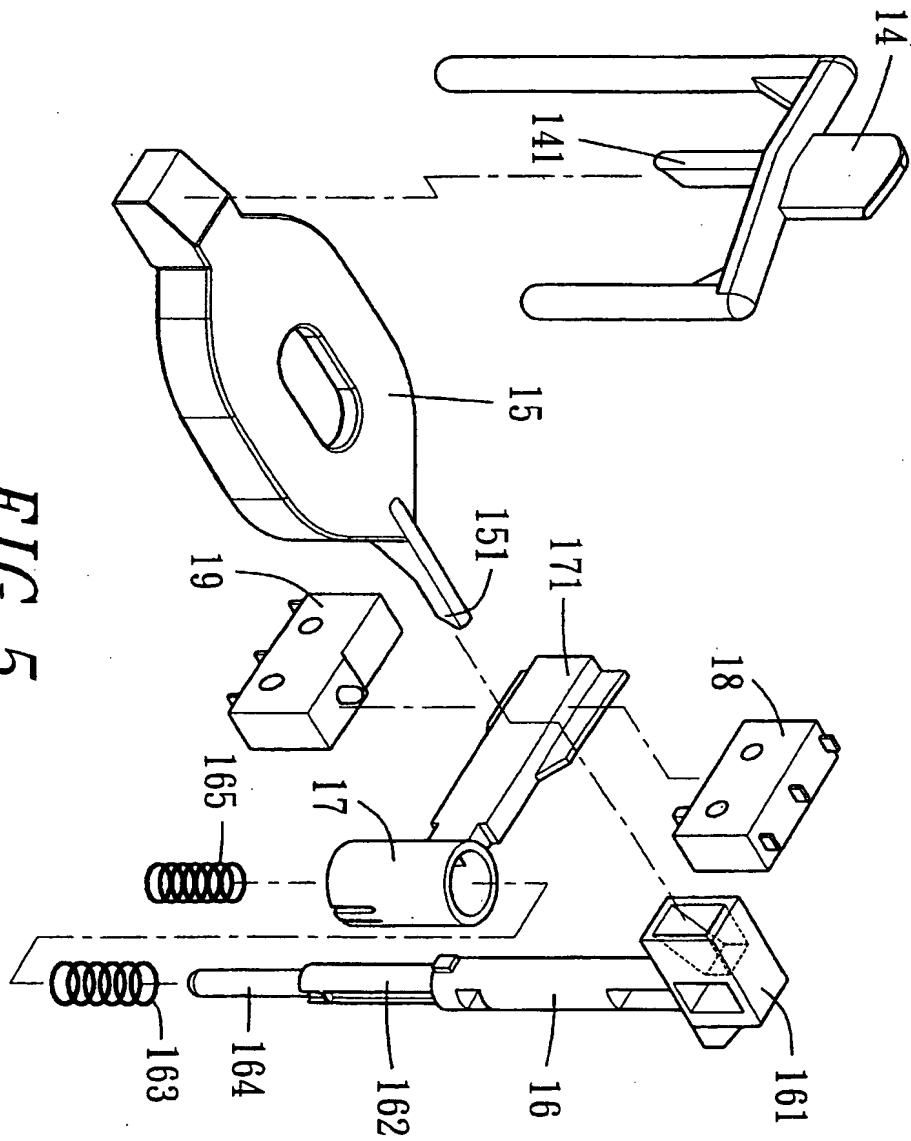
*FIG. 1*

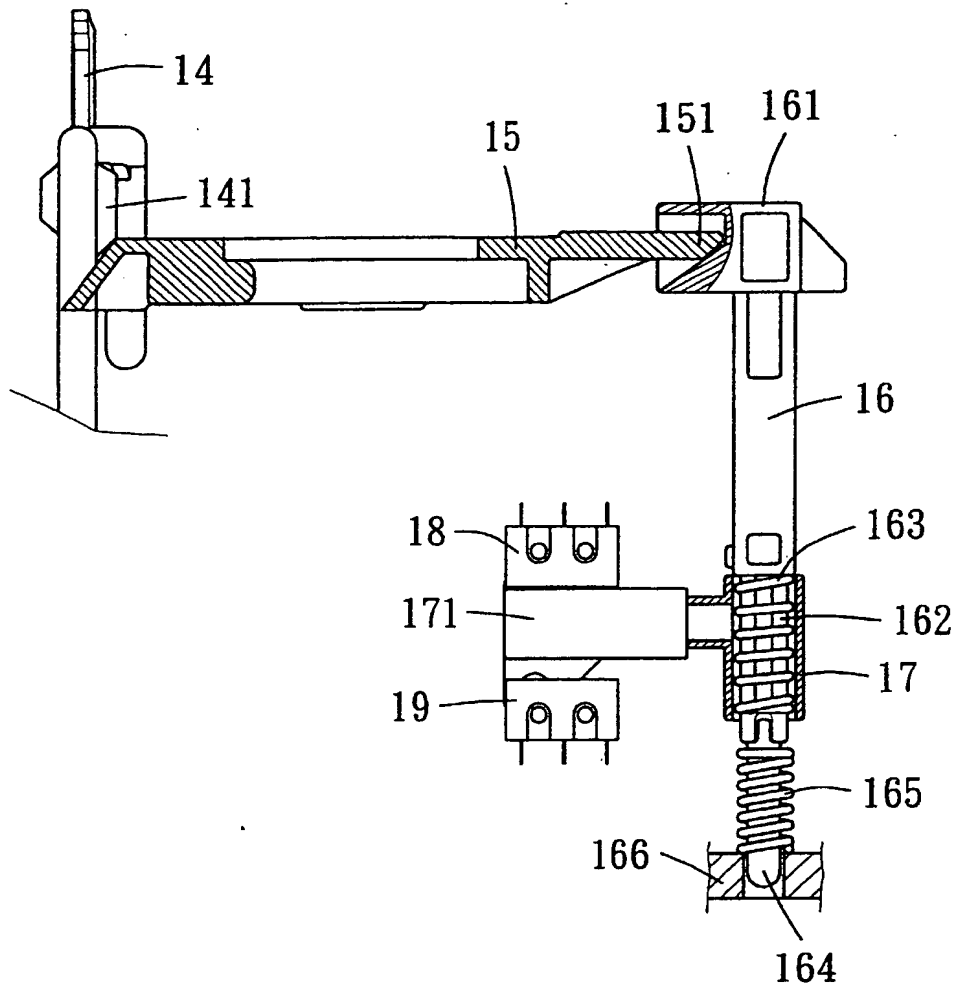


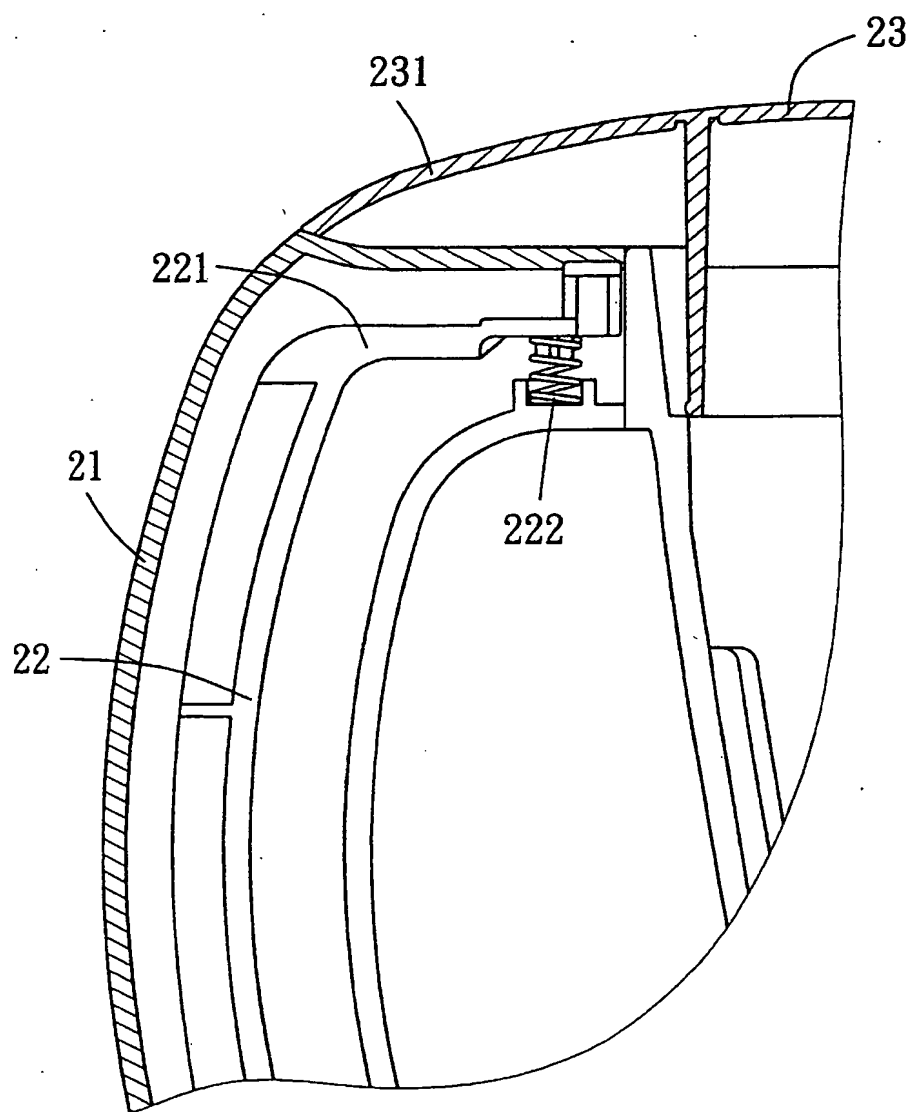
*FIG. 3*



*FIG. 4*

*FIG. 5*

*FIG. 6*

*FIG. 7*

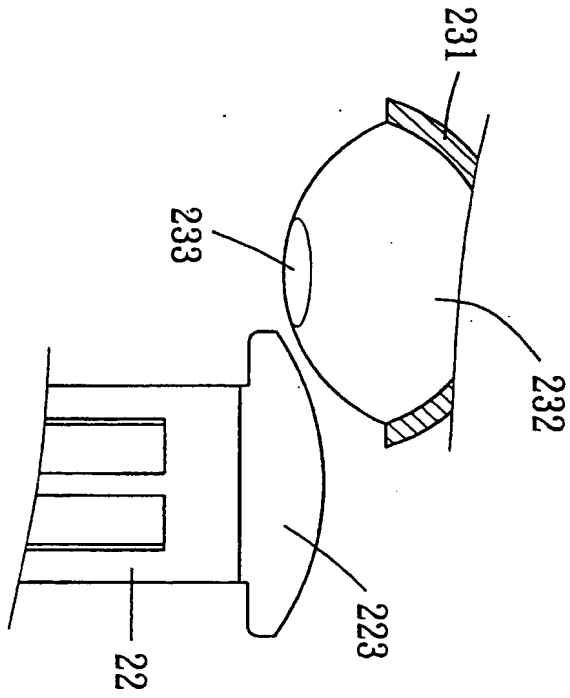


FIG. 8

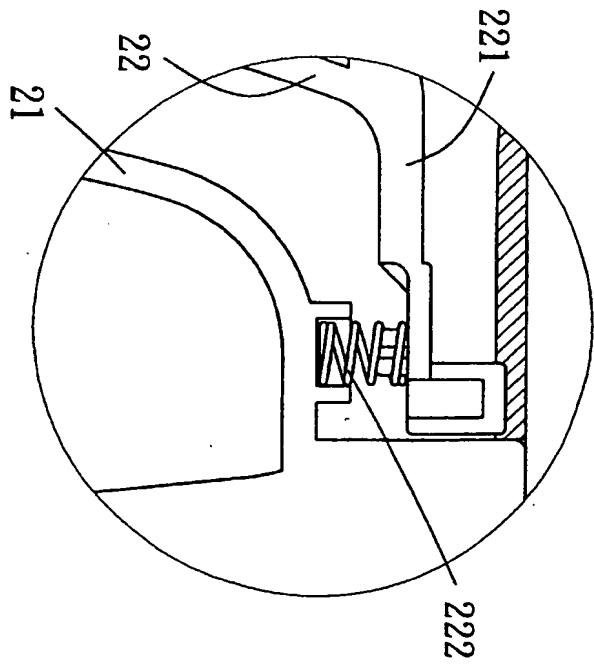


FIG. 9

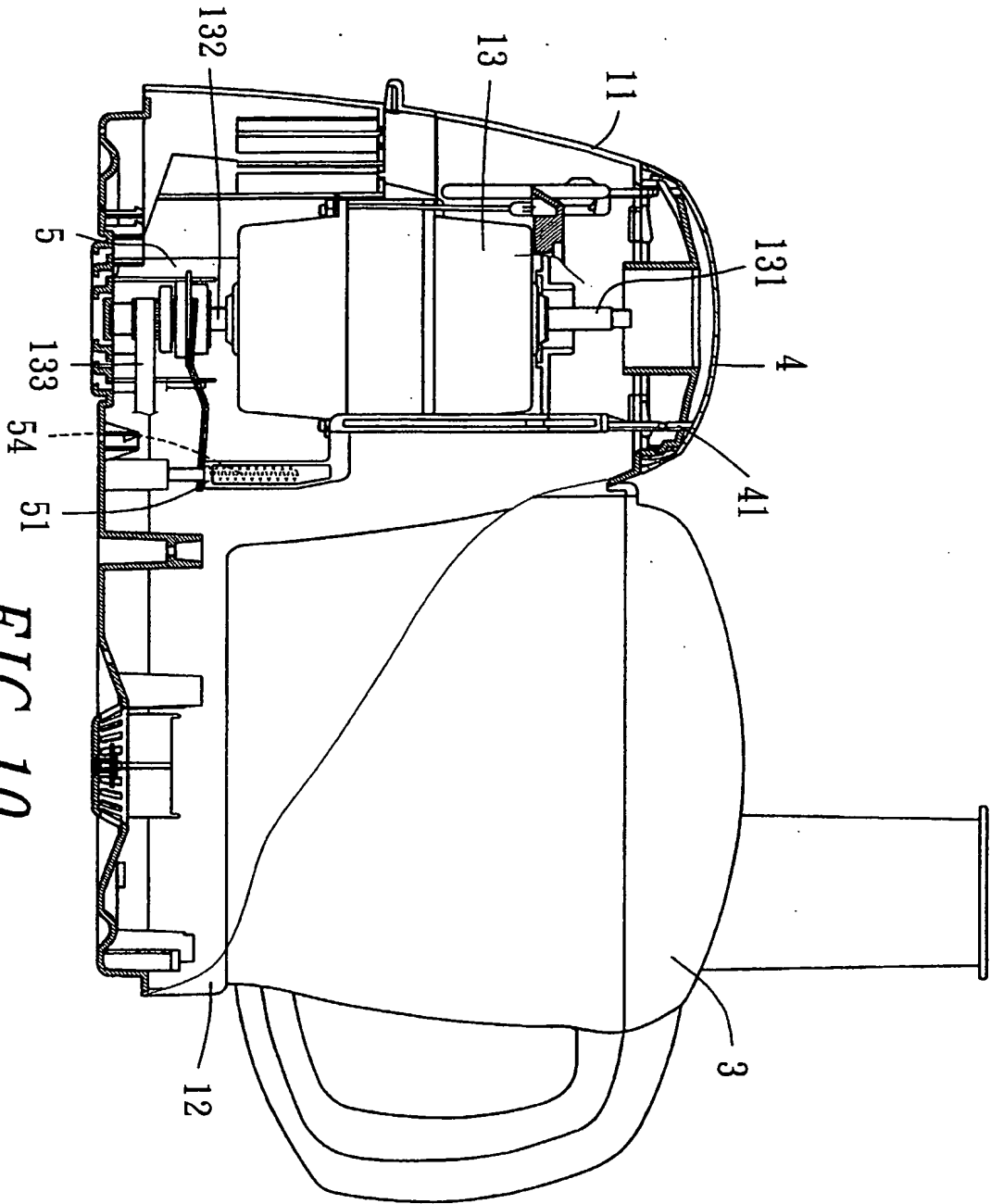
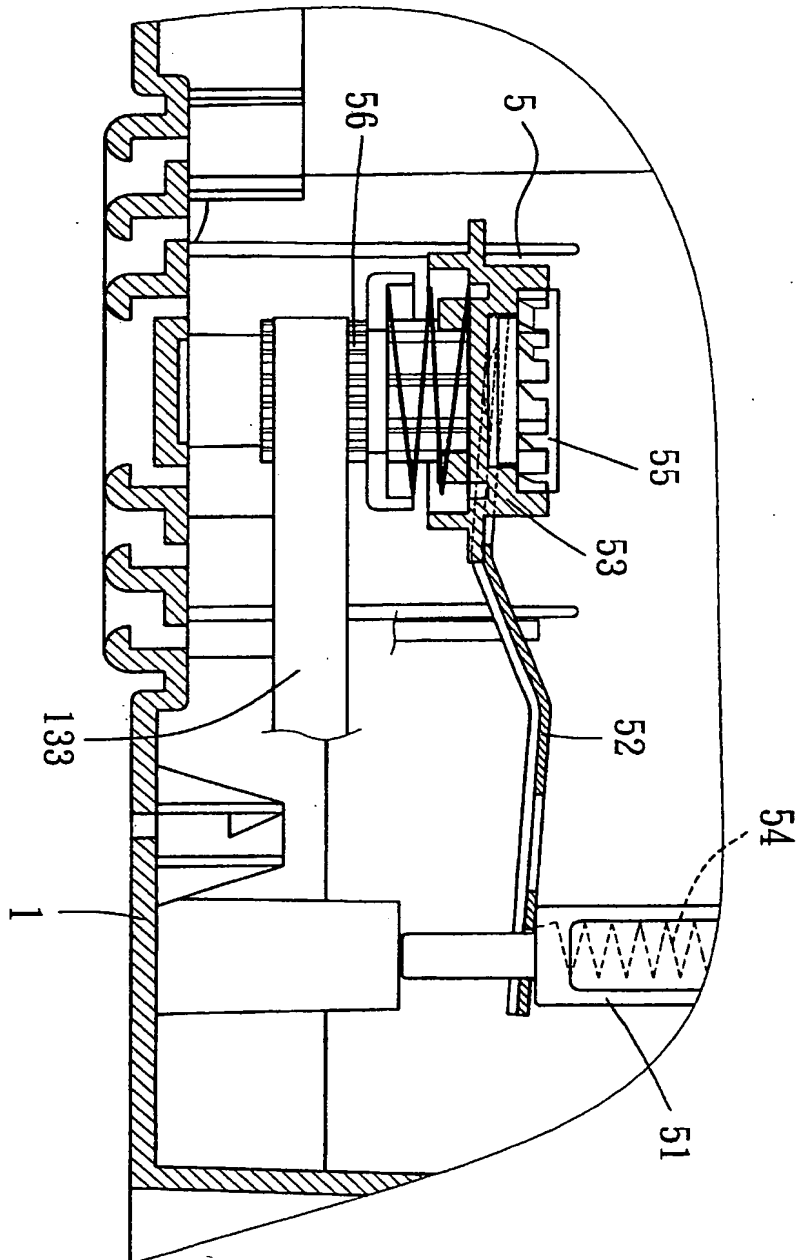
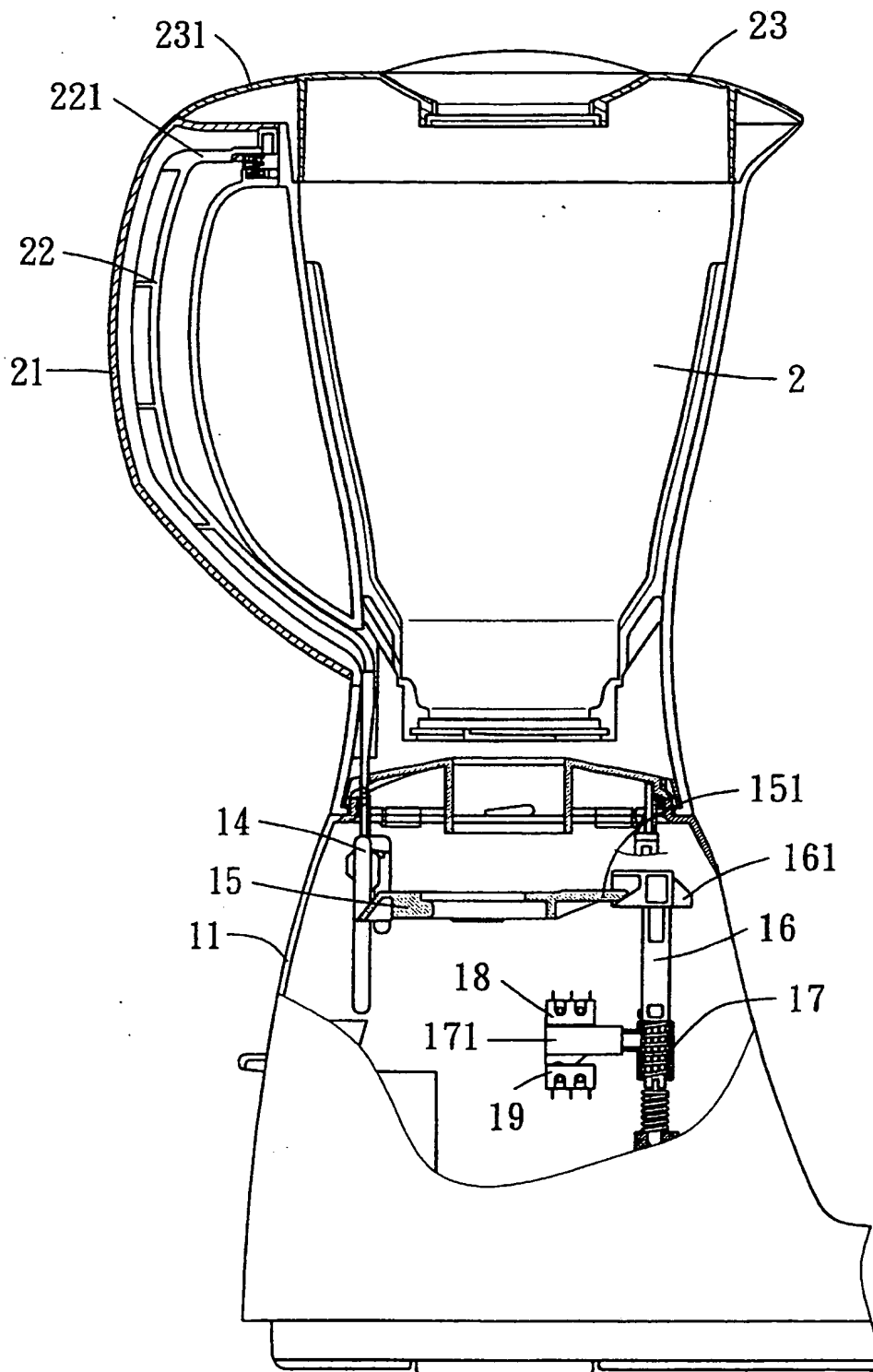
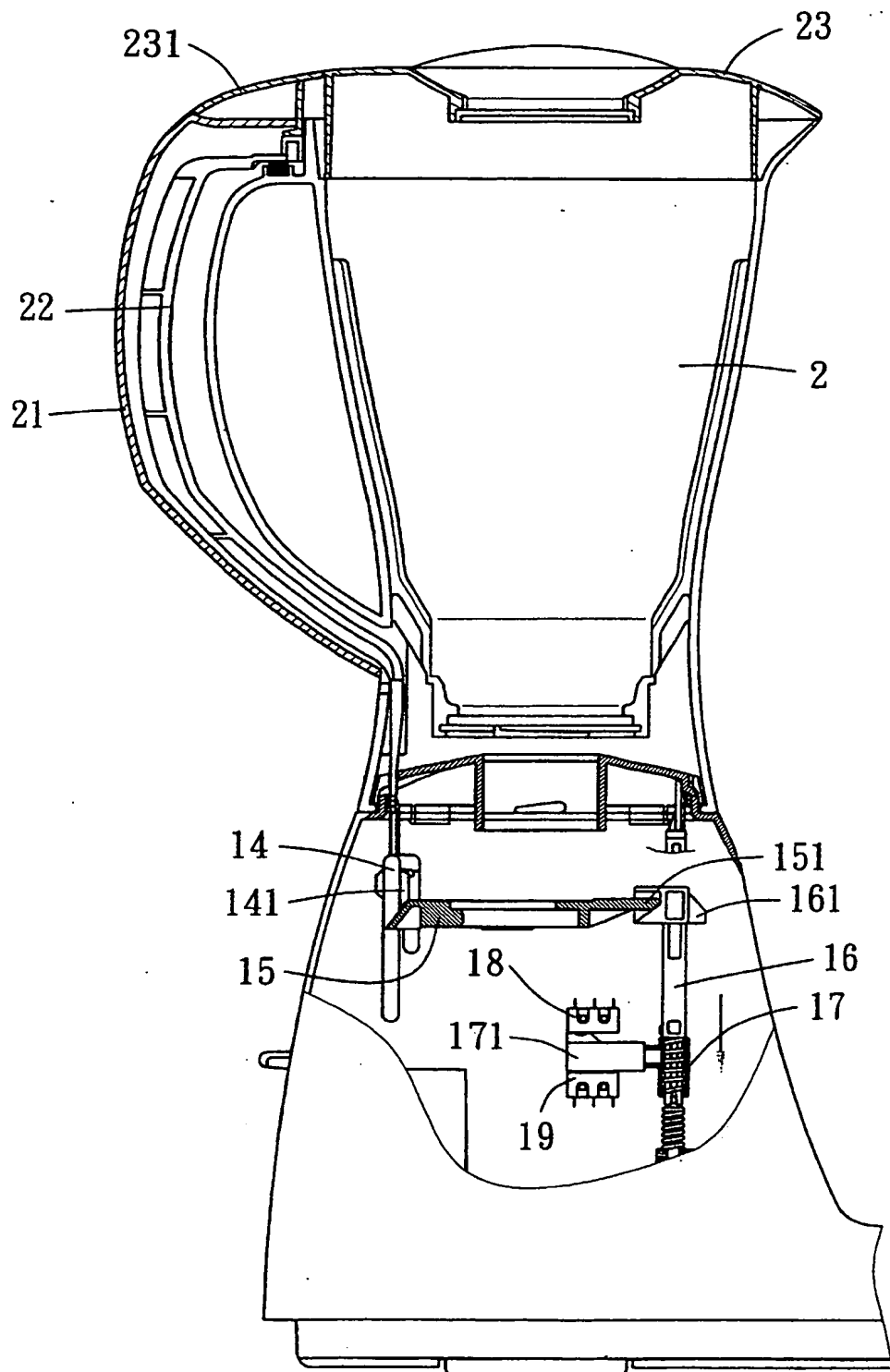


FIG. 10

*FIG. 11*

*FIG. 12*



*FIG. 13*

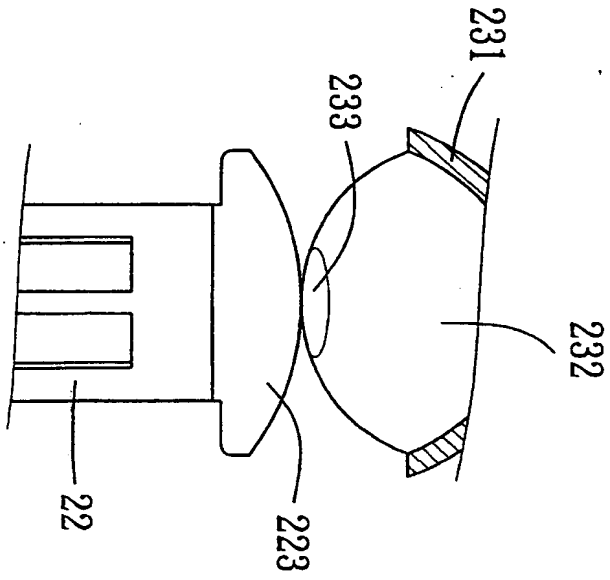


FIG. 14

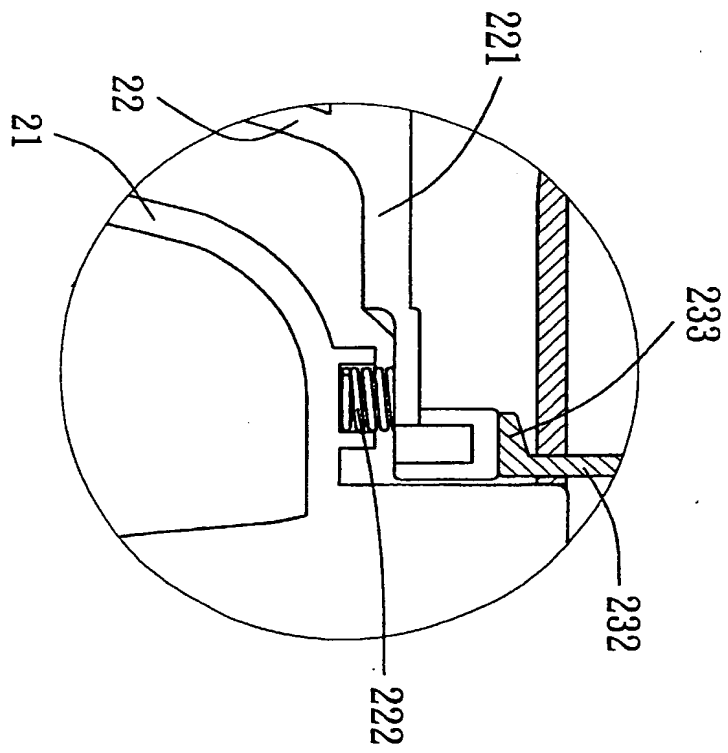
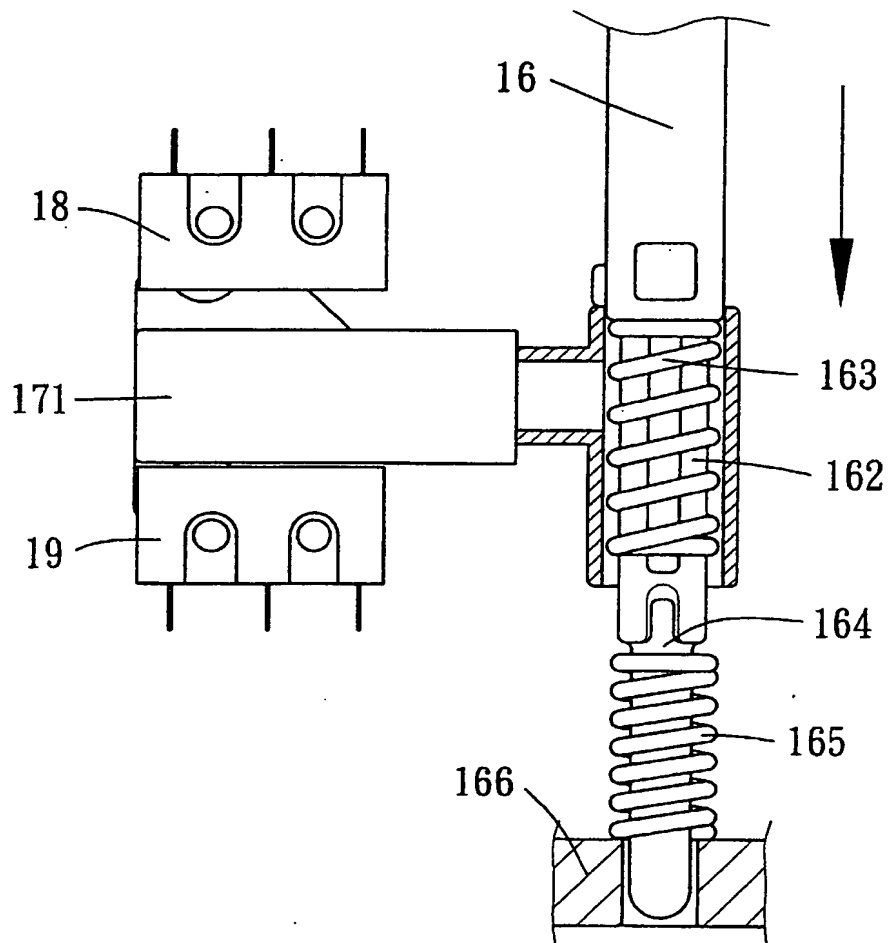


FIG. 15



*FIG. 16*



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**Application No:** GB 0208802.9  
**Claims searched:** 1-11

**Examiner:** Conal Clynch  
**Date of search:** 30 September 2002

## Patents Act 1977 Search Report under Section 17

### Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.T):

Int Cl (Ed.7): A47J 42/56, 44/00

Other: Online: EPODOC, JAPIO, WPI

### Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	US 5979806 A (Braun)	

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Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
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